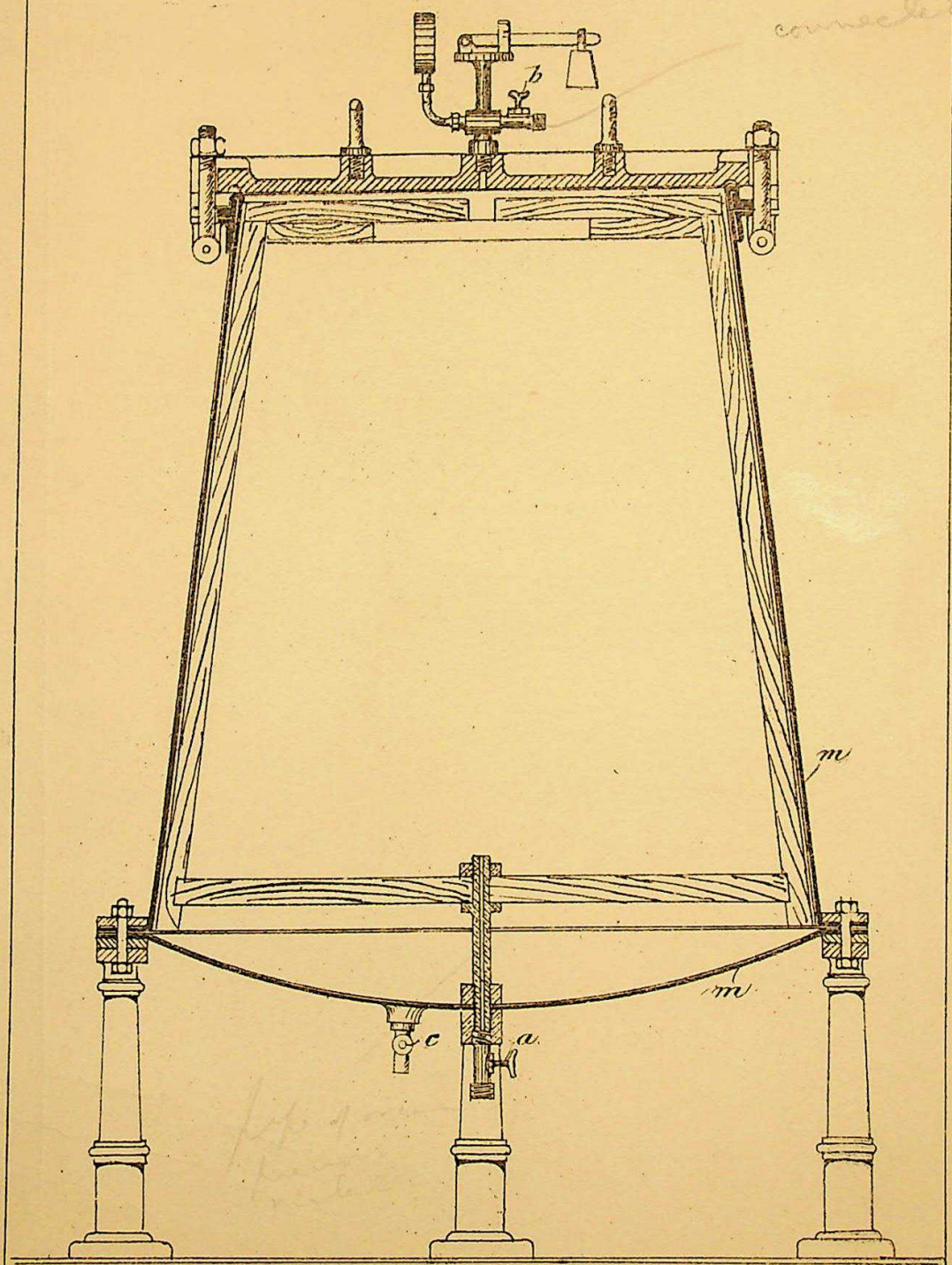
Manufacture of sparkling wine, on a small scale. Pt 14276
Expells air from vat by injecting CO_2; places grape, fruit, or berry wine therein; adds yeast prepared from sugared wine and crushed ~~xxxxxx~~ raisins; ferments at 77 F; by the pressure of CO_2, through b, at the end of the fermentation, forces out the wine through pipe, a, which is formed of, or lined with precious metal.

1891

195/36-34

A.D. 1891. Aug. 24. № 14,276.
BRUNS' PROVISIONAL SPECIFICATION. (1 SHEET)

DRO. 66579 - Dr Farm Vats



[This Drawing is a reproduction of the Original on a reduced scale.]

LONDON: Printed by DARLING and SON Ld.
for Her Majesty's Stationery Office. 1891.
Malby & Sons, Photo-Litho.

426/15

N° 14,276 A.D. 1891

RECORDED

Date of Application, 24th Aug., 1891
Complete Specification Left, 2nd Sept., 1891—Accepted, 31st Oct., 1891

PROVISIONAL SPECIFICATION.

A Process and Apparatus for the Production of Sparkling Wines and other Sparkling Beverages.

I, ALEXANDER BRUNS of Halle on the Saale, Germany, Chemist, do hereby declare the nature of this invention to be as follows :—

A process of manufacture of sparkling wines (champagne &c.) and other sparkling beverages which are produced by natural fermentation, is hereinafter described, having for object to enable such wines or beverages to be produced even in very small quantities, so that every wine merchant, even one in the smallest way of business, can produce for himself the quantity he requires of wines and other sparkling beverages of the kind mentioned. This process renders it possible to manufacture sparkling wines ("Sect") in countries where their manufacture has not been carried on heretofore, and thereby to save import duty. In carrying out the new process an apparatus is used which is illustrated in the accompanying drawings. This apparatus consists of a vat of upwardly tapering form, provided at bottom with a discharge cock *a*, enclosed in an air tight metal envelope *m*

For manufacturing sparkling wines from grape wine, fruit wine, and berry wine, the wine is charged into the vat, and, if it does not contain the necessary ferments, there is mixed with the wine a ferment obtained by squashing raisins in a mortar, pouring light sugared wine thereon, and keeping this mixture in a lightly corked condition for several days at a temperature of about 25° C. (say 77° Fah.); on the third day there will be living yeast cells. The temperature of the apartment or locality in which the vat is located, should be about 22° C. (say about 72° Fahr.) during fermentation. After the wine which is to be manufactured into sparkling wine has been charged into the vat and the ferment added to it if required and when the apparatus has been and is closed, the atmospheric air contained in the envelope is expelled and replaced by carbonic acid ; this being effected by connecting the cock *c* by means of a pipe with the expansion vessel hereinafter mentioned, whilst cock *b* is opened. Fermentation begins at once after charging, and is completed in from 14 to 21 days. The yeast particles are deposited on the bottom ; the conical form of the vat has for object to prevent the yeast from adhering to the walls.

By means of a small addition of tannin, and, if required, of alum, there is given to the yeast a pulverulent and non-tegumentary consistency which expedites the clarification. After the fermentation is terminated, the clear sparkling wine is drawn off (through the pipe which is provided with a discharge cock *a* and is made of (or coated with) precious metal, and projects a short distance above the bottom of the vat) into the bottles which have been previously charged with liqueur ; whilst the yeast remains undisturbed at the bottom of the vat until the apparatus is empty. In drawing off, which is effected exactly as in the case of mineral waters, the upper cock *b* is brought into communication with an expansion vessel containing the carbonic acid under pressure ; and thus, by exerting a uniform pressure upon the wine, the sediment is prevented from rising.

The new process has great advantages over others heretofore known for the manufacture of sparkling wine ("Schaumwein") and other sparkling beverages. As already mentioned, this new process enables even the smallest wine merchants to manufacture for themselves the quantities of champagne they require. Furthermore according to the new process the manufacture requires two to three weeks at the most, whilst the manufacture in bottles as practised at the present time takes at least 4 months. The product is much superior, because there is absolutely no loss of the carbonic acid (which has a pressure of 5 atmospheres and over).

[*Price* 8*d*.]

The costly labour usually required in manipulating the charged bottles ("degorgiren, dosiren" &c.) is dispensed with in the new process, and any workman, even though inexperienced can draw off the sparkling wine without difficulty. The large premises and extensive cellarages usually needed for the manufacture of champagne, are, as will be evident, also unnecessary for carrying out the new process. For example, on an area of 1·25 square metres 30,000 bottles can be filled, because a vat of 1000 litres capacity produces at each operation 1500 bottles of champagne, and can be filled 20 times in one year. The new process also admits of bottles being re-used because the internal glass walls of the bottles are not exposed to the action of the process of fermentation, and therefore remain as smooth as before. The breakage of bottles and the loss of wine which is caused at present by breakage and venting or discharging ("degorgement") *etc.*, and which amounts to about 20 % loss of wine and bottles, is also obviated by the new process.

Dated this 24th day of August 1891.

W. LLOYD WISE.

Per F. J. Brougham,
46, Lincoln's Inn Fields, London, W.C., Agent for the Applicant.

COMPLETE SPECIFICATION.

A Process and Apparatus for the Production of Sparkling Wines and other Sparkling Beverages.

I, ALEXANDER BRUNS of Halle on the Saale, Germany, Chemist, do hereby declare the nature of this invention and in what manner the same is to be performed to be particularly described and ascertained in and by the following statement:—

A process of manufacture of sparkling wines (champagne *etc.*) and other sparkling beverages which are produced by natural fermentation, is hereinafter described, having for object to enable such wines or beverages to be produced even in very small quantities, so that every wine merchant, one even in the smallest way of business, can produce for himself the quantity he requires of wines and other sparkling beverages of the kind mentioned. This process renders it possible to manufacture sparkling wines ("Sect") in countries where their manufacture has not been carried on heretofore, and thereby to save import duty.

In carrying out the new process an apparatus is used which is illustrated in the drawings filed with my Provisional Specification. This apparatus consists of a vat of upwardly tapering form, provided at bottom with a discharge cock *a*, and enclosed in an air tight metal envelope *m*.

For manufacturing sparkling wines from grape wine, fruit wine, and berry wine, the wine is charged into the vat, and, if it does not contain the necessary ferments, there is mixed with the wine a ferment obtained by squashing raisins in a mortar, pouring light sugared wine thereon, and keeping this mixture in a lightly corked condition for several days at a temperature of about 25° C. (say 77° Fah.); on the third day there will be living yeast cells. The temperature of the apartment or locality in which the vat is located, should be about 22° C. (say about 72° Fah.) during fermentation. After the wine which is to be manufactured into sparkling wine has been charged into the vat and the ferment added to it if required and when the apparatus has been and is closed, the atmospheric air contained in the envelope is expelled and replaced by carbonic acid; this being effected by connecting the cock *c* by means of a pipe with the expansion vessel hereinafter mentioned, whilst cock *b* is opened. Fermentation begins at once after charging, and is completed in from 14 to 21 days. The yeast particles are deposited on the bottom; the conical form of the vat has for object to prevent the yeast from adhering to the walls.

By means of a small addition of tannin, and, if required, of alum, there is given to the yeast a pulverulent and non-tegumentary consistency which expedites the

clarification. After the fermentation is terminated, the clear sparkling wine is drawn off [through the pipe which is provided with a discharge cock *a* and is made of (or coated with) precious metal, and projects a short distance above the bottom of the vat] into the bottles which have been previously charged with liqueur; whilst the yeast remains undisturbed at the bottom of the vat until the apparatus is empty. In drawing off, which is effected exactly as in the case of mineral waters, the upper cock *b* is brought into communication with an expansion vessel containing the carbonic acid under pressure; and thus, by exerting a uniform pressure upon the wine, the sediment is prevented from rising.

The new process has great advantages over others heretofore known for the manufacture of sparkling wine ("Schaumwein") and other sparkling beverages. As already mentioned, this new process enables even the smallest wine merchants to manufacture for themselves the quantities of champagne they require. Furthermore according to the new process the manufacture requires two to three weeks at the most, whilst the manufacture in bottles as practised at the present time takes at least 4 months. The product is much superior, because there is absolutely no loss of the carbonic acid (which has a pressure of 5 atmospheres and over).

The costly labour usually required in manufacturing the charged bottles ("degorgiren, dosiren" *etc.*) is dispensed with in the new process, and any workman, even though inexperienced, can draw off the sparkling wine without difficulty. The large premises and extensive cellerages usually needed for the manufacture of champagne, are, as will be evident, also unnecessary for carrying out the new process. For example, on an area of 1·25 square metres 30,000 bottles can be filled, because a vat of 1000 litres capacity produces at each operation 1500 bottles of champagne, and can be filled 20 times in one year. The new process also admits of bottles being re-used, because the internal glass walls of the bottles are not exposed to the action of the process of fermentation, and therefore remain as smooth as before. The breakage of bottles and the loss of wine which is caused at present by breakage and venting or discharging ("degorgement") *etc.*, and which amounts to about 20 °/₀ loss of wine and bottles, is also obviated by the new process.

Having now particularly described and ascertained the nature of the said invention and in what manner the same is to be performed I declare that what I claim is:—

1. The process of manufacture of sparkling wines and other sparkling beverages by natural fermentation, in which there is added to wine in a vat a ferment [obtained by adding to squashed raisins a light, sugared wine, and thereupon subjecting the mixture whilst lightly corked for several days to a temperature of about 25° C. (say 77° Fah.)] and during the process of fermentation the yeast has imparted to it by means of a small addition of tannin and alum, a pulverulent non-tegumentary consistency that expedites the clarification.

2. In the process of manufacturing sparkling wines and other sparkling beverages by natural fermentation, according to the preceding claim, the use as set forth of an apparatus consisting of an upwardly tapering vat which is enclosed within an air tight metallic envelope and is furnished at bottom with a discharge cock (made of or coated with precious metal) that projects somewhat into the vat, and which vat can be placed in communication by means of an upper cock *b* with an expansion vessel containing carbonic acid under pressure, substantially as described and illustrated in the drawing.

Dated this 2nd day of September 1891.

W. LLOYD WISE,
Per F. J. Brougham,
46, Lincoln's Inn Fields, London, W.C., Agent for the Applicant.

London: Printed for Her Majesty's Stationery Office, by Darling & Son, Ltd.—1891.